

### **Amendments to the Claims**

Please amend claims 1 and 4-8, without prejudice.

Please cancel claims 9-20, without prejudice.

Please add new claims 21-34.

This listing of claims will replace all prior versions, and listings of claims in the application:

### **Listing of Claims:**

1. (Currently Amended) A method ~~of managing a switch~~, comprising:
  - ~~Installing the~~ providing a switch having a plurality of processor elements (PEs), each of the plurality of PEs running a network operating system (NOS), the NOS allowing the switch to create discrete customized services for customers of a service provider operating the switch by providing each customer with a customized configuration of service object groups;
  - ~~installing an operating system on each processor element;~~
  - creating a system virtual router on ~~[[one]]~~ a first PE of the plurality of PEs ~~processor elements~~, wherein creating ~~[[a]]~~ the system virtual router includes establishing a global object manager associated with the NOS of the first PE ~~on one of the plurality of processor elements~~, the global object manager being responsible for managing global object groups and global object configurations; and
  - configuring the plurality of PEs ~~the processor elements~~ from the system virtual router, wherein configuring includes establishing, via the global object manager, a local object manager on each of the PEs ~~processor element~~, wherein the local object manager for a given PE of the plurality of PEs ~~manages objects local to each processor element~~ the given PE and transfers messages between objects on the given PE ~~processor~~

~~element~~ and between objects on the given PE and objects on other PEs of the plurality of PEs ~~processor elements~~.

2. (Original) An article comprising a computer readable medium having instructions thereon, wherein the instructions, when executed in a computer, create a system for executing the method of claim 1.
3. (Cancelled)
4. (Currently Amended) The method of claim 1, wherein said configuring the processor elements PEs of the plurality of PEs includes creating a customer virtual router from selected PEs processor elements on multiple blades of the switch, wherein creating a customer virtual router includes:
  - establishing a virtual private network (VPN) associated with a customer;
  - adding the customer virtual router to a list of virtual routers associated with the VPN ~~virtual private network~~; and
  - creating an object associated with the customer virtual router on each of the selected PEs processor elements.
5. (Currently Amended) The method of claim 1, wherein said configuring the processor elements the plurality of PEs includes:
  - adding new PEs processor elements; and
  - using a distributed management layer to group PEs processor elements into at least one virtual router, wherein grouping includes assigning a group identifier to selected objects in each PE processor element such that the selected objects can be addressed as a group.
6. (Currently Amended) The method of claim 5, wherein using a distributed management layer to group processor elements into at least one virtual router includes:
  - requesting the global object manager to create a virtual router from a group of PEs processor elements;

requesting one or more of the local object managers to group the  
group of PEs ~~processor elements~~;  
activating PEs ~~processor elements~~ of the group; and  
generating a status message that the at least one virtual router is  
created.

7. (Currently Amended) The method of claim 6, wherein said activating PEs ~~processor elements~~ of the group includes causing ~~changing~~ a state machine for a PE of the PEs of the group ~~processor element~~ to enter an active state.
8. (Currently Amended) The method of claim 5, wherein said using a distributed management layer to group PEs ~~processor elements~~ includes adding object identifiers to a global object database.
- 9-20. (Cancelled)
21. (New) The method of claim 1, wherein the customized configuration of service object groups associated with a first customer represent network resources of the switch sufficient to provide the first customer with network-based managed firewall services.
22. (New) The method of claim 21, wherein the customized configuration of service object groups associated with the first customer further represent network resources of the switch sufficient to provide the first customer with virtual private network (VPN) services.
23. (New) The method of claim 21, wherein the customized configuration of service object groups associated with a second customer represent network resources of the switch sufficient to provide the second customer with network-based managed firewall services.
24. (New) The method of claim 23, wherein the customized configuration of service object groups associated with the second customer further represent

network resources of the switch sufficient to provide the second customer with virtual private network (VPN) services.

25. (New) A method comprising:

providing a switch having a plurality of processor elements (PEs),  
each of the plurality of PEs running a network operating system (NOS);

creating discrete customized services for each customer of a  
service provider operating the switch by providing each customer with a  
customized configuration of service object groups; and

configuring and managing the service object groups by

establishing a global object manager associated with the  
NOS of a first PE of the plurality of PEs, the global object manager  
being responsible for managing a global object database, global  
object groups and global object configurations;

establishing, via the global object manager, a local object  
manager on each of the plurality of PEs; and

each of the local object managers managing objects local to  
the corresponding PE of the plurality of PEs, including establishing  
object channels between objects residing in local and remote  
address spaces via connection end points supported by the NOS,  
each object channel representing a point-to-point asynchronous  
communications channel between a first object and a second object  
onto which services can be pushed.

26. (New) The method of claim 25, further comprising configuring the plurality of PEs by

creating a customer virtual router from selected PEs of the plurality  
of PEs on multiple blades of the switch;

establishing a virtual private network (VPN) associated with a  
customer;

adding the customer virtual router to a list of virtual routers  
associated with the VPN; and  
creating an object associated with the customer virtual router on  
each of the selected PEs.

27. (New) The method of claim 26, wherein said configuring the plurality of PEs includes:

adding new PEs; and  
using a distributed messaging layer of the NOS to group PEs into  
at least one virtual router, wherein grouping includes allowing selected  
objects in each PE to be addressed as a group by assigning a group  
identifier to the selected objects.

28. (New) The method of claim 27, wherein said using a distributed messaging  
layer of the NOS to group PEs into at least one virtual router includes:

requesting the global object manager to create a virtual router from  
a group of PEs;  
requesting one or more of the local object managers to group the  
group of PEs;  
activating PEs of the group; and  
generating a status message that the at least one virtual router is  
created.

29. (New) The method of claim 27, wherein said using a distributed messaging  
layer of the NOS to group PEs includes adding object identifiers to the global  
object database.

30. (New) The method of claim 26, wherein the customized configuration of  
service object groups associated with a first customer represent network  
resources of the switch sufficient to provide the first customer with network-  
based managed firewall services.

31. (New) The method of claim 26, wherein the customized configuration of service object groups associated with the first customer further represent network resources of the switch sufficient to provide the first customer with virtual private network (VPN) services.
32. (New) The method of claim 30, wherein the customized configuration of service object groups associated with a second customer represent network resources of the switch sufficient to provide the second customer with network-based managed firewall services.
33. (New) The method of claim 31, wherein the customized configuration of service object groups associated with the second customer further represent network resources of the switch sufficient to provide the second customer with virtual private network (VPN) services.
34. (New) An article of manufacture comprising a computer-readable medium having instructions stored thereon, which when executed by one or more processors, cause the method of claim 26 to be performed.